

# PHARMACEUTICAL SCIENCE MAJOR

## Pharmaceutical Science Major Information:

Opportunities for pharmacists surged during the COVID-19 pandemic, but even during non-pandemic times, patients are relying on their neighborhood pharmacy for care they used to seek at a physician's office. Whether students interact with a community in a retail pharmacy setting or work closely with patients in a hospital preparing life-saving medications, or work in a research laboratory to find the next big cure, a pharmacy degree can lead to well-paying and rewarding work. One average, pharmacists in the Southeastern Wisconsin area make over \$110,000 and are in high demand (2024).

The Pharmaceutical Science major is a collaboration between Alverno College and Concordia University Wisconsin (CUW) School of Pharmacy or the Medical College of Wisconsin (MCW) School of Pharmacy. Alverno, students enroll in the advanced program, complete 86 credits in six semesters, then transition to the CUW or MCW Doctor of Pharmacy (PharmD) program. Upon completion of two semesters as a CW student or four quarters in the MCW PharmD program, students receive a Bachelor of Science in Pharmaceutical Science from and continue their studies at CUW or MCW. Students in this major work closely with academic advisor to assure their preparation for pharmacy school is on track. Students applying to CUW are guaranteed an interview with CUW School of Pharmacy admissions. Students intending to attend MCW School of Pharmacy must apply into the 3+3 dual degree program after their first semester and are guaranteed admission as long as they continue to meet the academic requirements of the program.

## Learning Outcomes:

- Effectively uses the language, concepts, and models of chemistry and biology to fluently communicate about scientific phenomena and build a foundation for pharmaceutical science (*Communication*)
  - Consistently uses scientific vocabulary fluently and precisely in developing coherent and substantiated communications of scientific concepts and applications
  - Effectively uses graphs, tables, diagrams, molecular structures, and equations to represent scientific data and relationships
  - Adeptly matches communication content, style, and structure to the purpose of the communication and to the audience
  - Consistently and thoroughly meets standards of academic integrity in selection and citation of source material and in use of data to construct arguments and draw conclusions
- Accurately uses the methodologies of chemistry, biology, and pharmaceutical science to analyze quantitative and qualitative data (*Analysis, Problem Solving, Social Interaction*)
  - Selects and applies appropriate strategies and scientific models to analyze and synthesize data
  - Expresses valid interpretations based on a sound understanding of fundamental scientific concepts and analytical frameworks
  - Demonstrates appropriate and effective social interaction skills and professional behaviors in group problem solving experiences in the classroom and laboratory
  - Demonstrates creativity and sophistication in structuring, carrying out, and critiquing scientific investigations

3. Applies scientific frameworks to successfully solve problems through scientific investigation with attention to accuracy, safety, and an awareness of the implications of their practices (*Developing a Global Perspective, Valuing in Decisions Making*)

- Explains the theoretical underpinnings and demonstrates the practical application of laboratory techniques and instrumentation
- Applies valuing frameworks to make responsible decisions about the safe handling and conscientious disposal of reagents, the safe and appropriate use of equipment and technology, and the ethical use of scientific information
- Cultivates a professional identity by integrating experiences from academic and professional settings and by demonstrating initiative in engaging with contemporary issues in science and technology

## Faculty

### Contact for Pharmaceutical Science

Mernitz, Heather, Professor of Physical Science, PhD, *Biochemistry, Nutritional Biochemistry*, heather.mernitz@alverno.edu (<https://catalog.alverno.edu/laps/ns/chem/heather.mernitz@alverno.edu>)

### Pharmaceutical Science Faculty

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## Major Req

### Pharmaceutical Science (PHSC.D.BS) Major Requirements 25-26 Catalog

Code	Title	Credits
BI-251 & 251L	Microbiology and Microbiology Lab (General Education)	4
CH-213 & 213L	Chemistry of Bioorganic Molecules and Chemistry of Bioorganic Molecules Lab	4
CH-221	Organic Chemistry 1	3
CH-234 & 234L	Analytical Chemistry/Quantitative Analys and Analytical Chem-Quant Analysis Lab	4
CH-322 & 322L	Organic Chemistry 2 and Organic Chemistry 2 Lab	4
CH-374	CH Assessment in Effective Citizenship	0
CH-328 or BI-338	Biochemistry With Laboratory Pathophysiology	4
Choose 3 Credits From Below		3
BI-325 & 325L	Cellular Biology and Cellular Biology Lab	
BI-333	Human Anatomy & Physiology II	
BI-361 & 361L	Genetics Lecture and Genetics Lab	
BI-395 or CH-395	Biochemistry of Micronutrients Biochemistry of Micronutrients	
BI-397 or CH-397	Independent Study Independent Study	
BI-425	Molecular Biology	
BI-452	Immunology	
BU-210	Macroeconomics	3
PPS-229	Career & Internship Planning (General Education )	1
MT-152	Calculus 1	4
MT-256	Probability and Statistics (General Education )	4
PH-241 & 241L	Calculus-Based Physics 1 and Physics Lab	4
Medical College of WI (MCW)/Concorida Univ WI (CUW) Upper-Level (300-400) Courses		18
<b>Total Credits</b>		<b>60</b>